Happenings

at the Science Advisory Board

...insuring a solid technical basis for environmental protection

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This issue consists of thirteen Courier pages.

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1.EDITORIAL

"WE'VE GOT TO PULL OUT BIGGER CHUNKS THAN THIS,
OR WE'LL BE HERE ALL DAY!"

This punch line from May's Bon Mot conveys one of the major take-home messages emerging from the SAB's soon-to-be-released report of the Integrated Risk Project (IRP); i.e., the time has come to deal with environmental protection on a larger, more integrated scale and to measure the results of those efforts on the basis of outcomes in the environment.

The IRP report, entitled "Integrated Environmental Decision-making in the 21st Century" is an updating and expansion of the Board's 1990 report, *Reducing Risk*, which focused on comparative risk issues. In the 1999 document, the Board focuses on tools that can be used to compare risks posed by a variety of physical, chemical, and biological stressors.

The report presents a framework for Integrated Environmental Decision-mak ing (IED) that is conceptually linked to paradigms already familiar to those who frequently deal with risk assessment and risk management issues; e.g, the 1984 NRC "Red Book" and the 1992 EPA Framework for Ecological Risk Assessment. The deceptively modest extension incorporated in the IED Framework actually refers to a more radical integration of scientific risk assessment, multiple risk comparisons, multiple risk reduction options, economic consequences, multiple disciplines and points of view, and performance information.

More of a toolkit than a cookbook, the IED is presented in two parts: a) a relatively short Overview document, built around ten distinct Recommendations and b) a more extensive Exposition on the IED, consisting of eight substantive chapters:

1. The Framework
2. Comparing ecological risks
3. Comparing human health risks
4. Using benefit-cost analysis
5. Assessing the value of natural resources
6. Considering multiple risk reduction options
7. Evaluating the performance
8. Conclusions and recommendations

Dr. Genevieve Matanoski of Johns Hopkins University led a team of more than 40 physical scientists, engineers, biological scientists, and social scientists in the multi-year effort that resulted in the IED report. In late April, she briefed the Agency leadership on the report and will brief Congressional staff in May.

The IED report is currently in "peer review draft" form and will be posted on the SAB Website www.epa.gov/sab by mid-May. Dr. Granger Morgan, Professor at Carnegie-Mellon University, is chairing a formal peer review process that will culminate in a public meeting this summer. The intent is for the SAB to complete its work and forward the final report to the Administrator by the end of the calendar year.

Now that you've read the punch line, you can read the Bon Mot...and then read the IED!:)

Donald G. Barnes
SAB Staff Director

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2. TENTATIVE MEETING CALENDAR FOR MAY AND JUNE

Several of the Federal Advisory Committee Act (FACA) meetings noted below have been announced in the Federal Register (FR),together with additional background information. Readers can automatically receive e-mailed copies of FR Notices by subscribing to the SAB Listserver; see Section 6.b.2) below.

If a series of meetings is anticipated, the number of the meeting in the series is indicated in parentheses; e.g., "(#2)"

If a meeting is to be conducted via publicly accessible conference call, the data are enclosed in brackets: "[.....]"

A glossary of acronyms appears at the end of the list of June meetings.

MAY

May 4-5	Cost/Benefit Clean Air Act: Air Quality Models *Chair: Dr. Paulette Middlteon, RAND* *DFO: Dr. Angela Nugent* *(nugent.angela@epa.gov)*	Council/AQMS 3709M
[May 27	Executive Committee Meeting *Chair: Dr. Joan Daisey, Lawrence Berkeley National Laboratory* *DFO: Dr. Donald Barnes* *(barnes.don@epa.gov)*	EC] Tele. 3709M

JUNE

[June 3	Cost/Benefit Clean Air Act: Air Quality Models *Chair: Dr. Paulette Middleton, RAND* *DFO: Dr. Angela Nugent* *(nugent.angela@epa.gov)*	Council/AQMS] 3709M
June 9-10	Carbon Monoxide NAAQS, PM Research Strategy and Diesel Health Assessment *Chair: Dr. Joe Mauderly, Lovelace Respiratory Research Institute* *DFO: Mr. A. Robert Flaak* *(flaak.robert@epa.gov)*	CASAC RTP, NC

June 28-29	Cost/Benefit Clean Air Act: Health Effects-II *Chair: Dr. Paul Lioy, Environ. & Occupational* *DFO: Dr. Angela Nugent* *(nugent.angela@epa.gov)*	Council/HEES TBD
[TBA	Review Meeting *Chair: Dr. Joan Daisey, Lawrence Berkeley National Laboratory* *DFO: Dr. Donald Barnes* *(barnes.don@epa.gov)*	EC] Tele.
TBA	Peer Review of the IRP *Chair: Dr. Genevieve Matanoski, Johns Hopkins University* *DFO: Dr. John R. Fowle, III* *(fowle.jack@epa.gov)*	EC Subcomm. TBD
TBA	Fine Particle Monitoring/PM - II *Chair: Dr. Philip Hopke, Clarkson Univ.* *DFO: Mr. A. Robert Flaak* *(flaak.robert@epa.gov)*	CASAC Subcomm. RTP, NC

Glossary of acronyms for the uninitiated

CASAC = Clean Air Scientific Advisory Committee
COUNCIL = Council on Clean Air Compliance Analysis
AQMS = Air Quality Modeling Subcommittee
HEES = Health and Ecological Effects Subcommittee
DC = Washington, DC
DFO = Designated Federal Officer (SAB Staff lead)
DWC = Drinking Water Committee
EC = Executive Committee
EEAC = Environmental Economics Advisory Committee
EEC = Environmental Engineering Committee
EHC = Environmental Health Committee
EPEC = Ecological Processes and Effects Committee
IHEC = Integrated Human Exposure Committee
IRP = Integrated Risk Project
RAC = Radiation Advisory Committee
RSAC = Research Strategies Advisory Committee
RTP = Research Triangle Park, NC
SAP = Scientific Advisory Panel (FIFRA)(Not SAB affiliated)
TBA = To Be Announced
TBD = To Be Determined
[Tele] = Publicly accessible telephone conference call

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3. SAB REPORTS IN PROGRESS

a) PROJECTS SCHEDULED FOR PEER REVIEW AT A LATER EXECUTIVE COMMITTEE MEETING

1) Review of Cancer Guidelines	EC Subcomm.
2) Review of Comparative Risk Framework	DWC
3) Review of Data from Testing Human Subjects	EC Subcomm.
4) Review of Economic Analysis Guidelines	EEAC
5) Review of Hormone Disruptors	EC Subcomm.
6) Review of IRP Exposition	EC Subcomm.
7) Review of IRP Overview Report	EC Subcomm.
8) Review of IRP Risk Reduction Report	EC Subcomm.
9) Review of Wet Weather Flows	EEC
10) Advisory on Assessing Risks from Indoor Radon	RAC
11) Advisory on Charter for the Council for Environmental Regulatory Modeling (CREM)	EC Subcomm.
12) Advisory on White Paper on the Nature and Scope of Issues on Adoption of Model Use Acceptability Criteria	EC Subcomm.
13) Commentary on Environmental Impacts of Natural Hazards	EEC
14) Commentary on Measures of Environmental Technology Performance	EEC
15) Commentary on Need to Address Source Reduction and Control Technology in PM 2.5 Research Plans	EEC
16) Commentary on Pollution Prevention	EEC
17) Commentary on Utility of Proactive Technical Advice: The EEC Experience	EEC
18) Commentary on Waste Re-Use	EEC

b) PROJECTS THAT HAVE RECEIVED EC APPROVAL AND AWAIT COMPLETION

1) Review of Index of Watershed Indicators	EPEC

c) SAB REPORTS THAT DO NOT REQUIRE EC APPROVAL (CASAC and COUNCIL) THAT ARE ALSO UNDER DEVELOPMENT

1) Prospective Section 812 Study Review	COUNCIL

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4. COMMITTEE ACTIVITIES IN APRIL

On April 6-7, the Ecological Processes & Effects Committee(EPEC),(Chair, Dr. Terry Young, EDF) met to review a) a proposed methodology for establishing sediment guidelines for metals mixtures; b) a Biotic Ligand Model (BLM) for establishing aquatic life criteria for metals; and c) a proposed approach for setting Ecological Soil Screening Levels (Eco-SSLs) for use at Superfund sites.

On April 8, the Executive Committee(EC),(Chair, Dr. Joan Daisey, LBNL), met by conference call and approved three reports:

a. The EPEC's *Review of the USEPA's Index of Watershed Indicators (IWI)*
b. The IHEC's *Advisory on the USEPA's Draft Project Reports on Energy Cost and Indoor Air Quality Performance of Ventilation Systems and Controls*
c. The IHEC's *Advisory on the USEPA's Proposed Data Analyses for the Building Assessment and Survey Evaluation (BASE) Study*

They also suggested that the EEC's draft *Commentary on Research on Risk Reduction Options for Particulate Matter 2.5* be 1) re-drafted and/or 2) the EEC broaden the investigation and work with the BOSC.

Minutes of the meeting are on the SAB Website.

On April 20, the Environmental Economics Advisory Committee(EEAC), (Chair, Dr. Robert Stavins, Harvard University,Chai r) met to continue the review of the EPA draft Economic Analysis Guidelines. The EEAC noted the marked improve ment in the guidelines over the last months and indicated that at its telephone conference meeting (to be scheduled for July 1999) it will complete its consensus development process for comments to include in its report to the Agency on the guidelines.

The meeting also included an interaction with Dr. Richard Mazur, Chief Economist for the U.S. Department of Energy, who noted a series of messages that economists should carry to policy makers: 1) resources are finite; 2) people in business respond to incentives; 3) if market parameters are well established, then market approaches to regulation are the best approaches; and 4) it is difficult for governments to time policy interventions. Just as important, he noted a number of messages for economists who work in government: 1) academic economists do not have a

competitive advantage in policy making; 2) economic insight is most valuable early in the policy making process; and 3) economists should expect a low success rate in policy making since it is only one of many dimensions that influence the process.

EEAC members were gratified to receive at the meeting, a letter from Mr. David Gardiner, EPA Assistant Administrator for Policy. Noting the positive influence of the SAB/EEAC Commentary that urged EPA and the Bureau of Census to reestablish the Pollution Abatement and Control Expenditure survey (PACE). The PACE survey will be started again beginning with calendar year 2000.

On April 21-22, the Health and Ecological Effects Subcommittee (HEES) of the Advisory Council on Clean Air Act Compliance Analysis (Council), (Chair, Dr. Paul Lioy, EOHSI), met to review background materials for the Agency's draft *Prospective Study: Report to Congress*, pursuant to Section 812 of the Clean Air Act Amendments (CAAA). The HEES focused on the data, methodology, results, and documentation of human health effects and ecological effects for the Study. Members addressed seven charge questions from the Agency related to the analyses of health and ecological effects. The Subcommittee will develop a consensus report in May for transmittal to the Council. The HEES is planning to meet next on June 28-29, 1999.

On April 27, the Radiation Advisory Committee(RAC), (Chair, Dr. Stephen Brown, R2C2) tentatively scheduled a teleconference to complete the second public draft of its Advisory on Radon Risk. Due to the RAC's focused efforts to complete its work in a timely manner, the scheduled teleconference was unnecessary. The draft Advisory will be reviewed by the SAB's Executive Committee (EC) on May 27.

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5. ABSTRACTS OF NEW REPORTS

a. AN SAB ADVISORY: Energy Cost and Indoor Air Quality Performance of Ventilation Systems and Controls EPA-SAB-IHEC-ADV-99-007

The Integrated Human Exposure Committee (IHEC) of EPA's Science Advisory Board, supplemented by an economist (a liaison

from the SAB Environmental Economics Advisory Committee), reviewed the draft EPA project reports on Energy Costs and Indoor Air Quality Performance of Ventilation Systems and Controls. The purpose of this project was to assess the compatibilities and trade-offs between energy and indoor air quality objectives in the design and operation of heating, ventilation, and air-conditioning (HVAC) systems in commercial buildings. In its draft reports, the EPA concludes that indoor environmental quality appears to be compatible with energy efficiency goals when energy saving measures and retrofits are applied wisely.

Overall, the Committee found the Energy Cost and Indoor Air Quality Performance of Ventilation Systems and Controls Project to be well-executed and clearly presented. The Committee was particularly impressed with the technical components of the methodology. The Committee also found that, in general, the findings of the report were supported by the modeling results and that, in general, the analyses were adequate for understanding some differences in the costs associated with having good indoor air quality amongst different ventilation systems. The Committee found that the major contribution of this modeling effort is that the results suggests that the tradeoffs are not very large, rather than that they do not exist.

The IHEC found the EPA reports to be ready for dissemination and broader discussion as long as the Agency further clarifies the limitations and caveats of the model and addresses the Committee's immediate concerns which are identified in the report. The Committee also found that additional work in several areas would strengthen the analysis when it is used to support specific policies. Specifically, the IHEC recommends that: a) the EPA work with DOE to further validate the DOE-2 model; b) the Agency clarify the significance of applying the ASHRAE standard and state whether or not the Agency is assuming that compliance with the ASHRAE standard implies that the indoor air quality is good for a given building and; c) the EPA further explain the cost of achieving improvements in IAQ by adjustments in the HVAC system, the cost associated with poor indoor air quality, and the benefits of improving indoor air quality through reduced occupant illness. The IHEC also offered several suggestions to be considered as ongoing research directions for future analyses.

b. AN SAB ADVISORY: Building Assessment and Survey Evaluation (BASE) Study Proposed Data Analyses EPA-SAB-IHEC-ADV-99-008

The Integrated Human Exposure Committee (IHEC) of the Science

Advisory Board met on March 9, 1999 in Washington, DC to conduct an advisory on the proposed data analyses for the Building Assessment Survey Evaluation (BASE) study. BASE is a cross-sectional multi-year study designed to define key characteristics of IAQ in 100 public and commercial buildings. The ultimate goal of the BASE study is to improve public health through improvements in indoor air quality.

Overall, the Committee found the proposed analyses to be the most relevant and extremely useful in providing significant data on the contributions of indoor environments to human exposure and reported symptoms. The BASE data is expected to be normative (typical of public and commercial buildings) because the buildings used in the study were randomly selected. The frequency distributions of the normative data are the hallmark of this project and should be extremely useful in supplying relevant and useful yardsticks to practitioners studying indoor air. The Committee found the overall proposed analyses to be useful in helping the Agency to meet GPRA Goal 4, Objective 4, which states that "By 2005, 15 million more Americans will live or work in homes, schools, or office buildings with healthier indoor air than in 1994." The analyses of the study parameters can also be useful in determining good IAQ practices and, subsequently, in helping the EPA to achieve its GPRA goal of having 5% of the office buildings managed with good IAQ practices by 2005. The IHEC highly encouraged the Agency integrate the BASE project into the Agency's efforts to analyze cumulative exposure in order to maximize the impact of BASE on the overall protection of public health.

The IHEC strongly recommended that the Agency focus on conducting Quality Assurance/Quality Control on the data and then conduct an in-depth evaluation of the descriptive statistics in order to provide critically needed baseline information on the various parameters that have been monitored in the 100 commercial and public buildings that were included in the study. The Committee urged the Agency to release the information to the public as soon as the QA/QC and descriptive statistics analyses are completed. It was recommended that more complex analyses, such as testing for associations, be considered after the baseline data are released. The IHEC provides several recommendations for the subsequent data analyses. The IHEC emphasized that the Agency should determine (*a priori*) the acceptable power before testing for associations.

The IHEC recommended that the Agency incorporate guidelines regarding the scientific limitations in using the data. Such guidelines would reduce the likelihood that the data are

misinterpreted or that invalid associations are inferred and would minimize the likelihood of data dredging, especially given the large number of variables in the study. The Committee cited a few data sets with analyses that EPA may be able to use as guidance in its data analysis efforts and emphasized the importance of analyzing both the BASE data and the data from the Office of Research and Development longitudinal study, the Temporal Indoor Monitoring and Evaluation Study (TIME). The Committee also encouraged the Agency to establish collaborative relationships with other researchers when developing the strategy to conduct the BASE analyses and while conducting the BASE analyses.

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6. UPDATES

a) Annual Report:

The FY98 Annual Report of the SAB Staff, entitled "Transitions in the SAB," is available for distribution by contacting the SAB Staff at

Phone: 202-260-4126 Fax: 202-260-1889

This report provides a handy desk reference for SAB information. It includes

(1) A brief history of the SAB
(2) A summary of FY98 activities
(3) A list of FY98 Members and Consultants
(4) List of all FY98 reports, with Abstracts
(5) And much, much more!

b) Computer News:

(1) SAB Website within the EPA Home Page. You are invited to visit the SAB Website at URL:

http://www.epa.gov/sab

The site offers such features as

(a) Full-text reports for FY1994-FY1999
(b) Background information about the structure, function, and membership of the SAB
(c) A rolling two-month calendar of SAB meetings
(d) The most current issue of HAPPENINGS
(e) Draft/final agendas of upcoming meetings and draft/final minutes of past meetings.
(f) And much, much...well, maybe a little bit.more!

(2) SAB Listserver - By subscribing to the free SAB Listserver, you will automatically receive copies of all Federal Register notices announcing SAB meetings, together with brief descriptions of the topics to be covered at the meetings. These

notices will be e-mailed to you within 24-hours of their publication in the Federal Register.

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7. THE BOARD'S BIO

Dr. Kenneth Cummins is a member of the SAB Executive Committee(EC) as well as the SAB Ecological Processes and Effects Committee(EPEC). Since 1995, Dr. Cummins has held the position of Distinguished Scientist in the Ecosystem Restoration Department of the South Florida Water Management District (SFWMD) and he is currently located at the Tarpon Bay Environmental Laboratory (TBEL). TBEL is located on Tarpon Bay in the J. N. "Ding " Darling National Wildlife Refuge on Sanibel Island off the coast of Ft. Meyers in southwest Florida. TBEL is operated as a collabo rative facility by the SFWMD and the Florida Center for Environmental Studies (CES). CES is a state wide tax-supported center devoted to facilitating collaborative research by faculty and graduate students on environmental problems in Florida. Before joining the SFWMD, which is an agency of the state supported by property taxes, he held faculty positions at Northwestern University, University of Pittsburgh, Michigan State University, Oregon State University, and the University of Maryland. Dr. Cummins actually did two stints at Pitt, where he received tenure twice. It was during the second tenure that he served as Director of the Pymatuning Laboratory of Ecology, Pitt's year around environmental research and teaching facility.

As a SFWMD scientist, his major focus is on the selection and measurement of the most appropriate environmental parameters to chronicle aquatic ecosystem health, both freshwater and estuarine. He has worked on establishing an evaluation program for the ecological success of the Kissimmee River restoration in south central Florida, the largest river rehabilitation project ever attempted. Most recently, he has been sampling ecological components in remnant oxbows of the Caloosahatchee River and seagrass beds in its associated estuary/bay system.

Ken has published widely on aquatic ecosystems, especially running waters. He is particularly known for his role in the

large, multi-disciplinary million dollar National Science Foundation-funded River Continuum Project. He developed a method for using functional relationships of freshwater invertebrate populations as surrogates for ecosystem attributes that has been widely used in freshwater studies (three of his papers in this area have been designated Citation Classics). He produced, together with his long time colleague and friend Dr. Richard Merritt of Michigan State University, the standard work in the field on aquatic insects that is now in its third edition. In recognition of his work on freshwater invertebrates, he received the Distinguished Scientist Award of the North American Benthological Society. Ken spent 14 years as an ecological consultant to the United Nations World Health Organization's River Blindness Control Program (Onchocerciasis) in an 11 country area of West Africa. During this time, Ken and fish ecologist wife Peggy conducted a number of field surveys of streams and rivers in the highlands of Guinea and in Cote d'Ivore and Togo. A good bit of this sampling was accomplished by helicopter in totally roadless areas, often landing on rock out-croppings in the water because of the heavy cover of gallery forest along the streams and rivers.

Ken presently resides on Sanibel Island with his wife Dr. Peggy Wilzbach and 5 year old son Paul ("a funny thing happened to me on the way to my retirement"). They are enjoying being late in life parents, and Paul is a budding naturalist. In a recent short course on stream ecology held at the Michigan State University Kellogg Biological Station, in which Ken and Peggy participated, Paul was a big help pointing out aquatic insect orders stream side to the students. Ken has two grown sons by a previous marriage

who are computer experts, one at Stanford University the other at Cypress Semi-Conductor in Texas.

Next to his family, Ken's great loves are fly fishing and ice hockey. He can do both in Florida these days thanks to special salt water tackle and the miracle of artificial ice. The best fly fishing, however, is still done from the family cabins in Cooke City, Montana a few miles from the northeast gate to Yellowstone National Park.

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8. STAFF NEWS

a) Staff News

Dorothy Clark, Wanda Fields, Betty Fortune, Diana Pozun, Priscilla Tillery-Gadson, and Mary Winston were honored at a luncheon, in recognition of their pivotal role in helping the Board to "make a difference".

Thomas Miller and Stephanie Sanzone have been promoted to Senior Environmental Engineer and Senior Environmental Protection Specialist, respectively. Both DFOs will continue with some of their current committee work, while providing focus for the increasing number of SAB Special Projects subcommittees that are addressing high-profile issues.

Our congratulations...and appreciation...to them both!

Dr. Angela Nugent has joined the SAB staff on detail. Angela comes to the Board with extensive EPA experience in OPPTS, OPPE, and OP, where she was most recently deputy director of the community-based environmental protection program (CBEP). Her duties with us will include being DFO for the Council (and its subcommittees) and working on special projects, including the "New Approaches" initiative being led by Dr. Granger Morgan.

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9. BON MOT

Sid Slicker managed to get his fancy sports car mired in muck in a ditch along side the road at the edge of a farmer's field. Sid erupted in a colorful -- if profane -- commentary about people and bovines conspiring against him. The laconic farmer approached Sid and offered to pull his car out of the ditch. Hitching a chain between his tractor and the front end of the car, the farmer revved the engine and slammed the tractor into gear. Much to Sid's dismay, the bumper was torn from the still-stuck car, flew a beautiful parabolic curve, and ended up some distance down the road.

The farmer turned to the now speechless Sid and said, "We've got to pull out bigger chunks than this, or we'll be here all day."